Test Definition: HK27M

Histone H3 K27M Mutant (H3 K27M)
Immunostain, Technical Component Only

Overview

Useful For
Identifying the presence of altered H3 K27M protein

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
IHTOI	IHC Initial, Tech Only	No	No
IHTOA	IHC Additional, Tech Only	No	No

Testing Algorithm
For the initial technical component only immunohistochemical (IHC) stain performed, the appropriate bill-only test ID will be reflexed and charged (IHTOI). For each additional technical component only IHC stain performed, an additional bill-only test ID will be reflexed and charged (IHTOA).

Method Name
Immunohistochemistry (IHC)

NY State Available
Yes

Specimen

Specimen Type
TECHONLY

Ordering Guidance
This test includes only technical performance of the stain (no pathologist interpretation is performed). If diagnostic consultation by a pathologist is required order PATHC / Pathology Consultation.

Mayo Clinic Laboratories has multiple histone immunostains available. See table for ordering guidance.

Test ID	Published name	Indication	Mayo Clinic slide label
HG34W	Histone 3.3 G34W (H3F3A G34W) Immunostain, Technical Component Only	Giant cell tumor of bone (GCTB)	H3 G34W
HK27M	Histone H3 K27M Mutant (H3 K27M) Immunostain, Technical Component Only	K27M mutant midline gliomas	H3 K27M
HISME	Histone H3 Trimethyl K27 (H3 K27me[3])	MPNST and	H3 K27me3

	Immunostain, Technical Component Only	K27M mutant midline gliomas	
HK36M	Histone H3 K36M Mutant (H3F3 K36M) Immunostain, Technical Component Only	Chondroblastoma	H3 K36M

Shipping Instructions

Attach the green "Attention Pathology" address label (T498) and the pink Immunostain Technical Only label included in the kit to the outside of the transport container.

Specimen Required

Specimen Type: Tissue
Supplies: Immunostain Technical Only Envelope (T693)
Container/Tube: Immunostain Technical Only Envelope
Preferred:
Formalin-fixed, paraffin-embedded tissue block
OR
2 Unstained, positively charged glass slides (25- x 75- x 1-mm) per test ordered; sections 4-microns thick
Acceptable: None

Digital Image Access

1. Information on accessing digital images of immunohistochemical (IHC) stains and the manual requisition form can be accessed through this website: https://news.mayocliniclabs.com/pathology/digital-imaging/
2. Clients ordering stains using a manual requisition form will not have access to digital images.
3. Clients wishing to access digital images must place the order for IHC stains electronically. Information regarding digital imaging can be accessed through this website: https://news.mayocliniclabs.com/pathology/digital-imaging/#section3

Forms

If not ordering electronically, complete, print, and send an Immunohistochemical (IHC)/In Situ Hybridization (ISH) Stains Request (T763) with the specimen.

Reject Due To

Wet/frozen tissue Cytology smears Nonformalin fixed tissue Nonparaffin embedded tissue Noncharged slides ProbeOn slides	Reject

Snowcoat slides	

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
TECHONLY	Ambient (preferred)		
	Refrigerated		

Clinical & Interpretive

Clinical Information

Histone H3 K27M is an alteration in the *H3F3A* gene, encoding for histone H3.3. This alteration is characteristic of "diffuse midline glioma, H3 K27M-mutant," a new entity in the classification of central nervous system tumors, which carries a poor prognosis. H3 K27M-mutant diffuse midline glioma occurs most commonly in young children but, less frequently, can occur in adults. The most common locations include the brain stem, thalamus, and spinal cord. The term brain stem glioma and diffuse intrinsic pontine glioma were previously used to indicate tumors occurring in the brain stem and pons respectively.

Interpretation

This test does not include pathologist interpretation, only technical performance of the stain. If interpretation is required, order PATHC / Pathology Consultation for a full diagnostic evaluation or second opinion of the case.

The positive and negative controls are verified as showing appropriate immunoreactivity. If a control tissue is not included on the slide, a scanned image of the relevant quality control tissue is available upon request; call 855-516-8404.

Interpretation of this test should be performed in the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

Cautions

Age of a cut paraffin section can affect immunoreactivity. Stability thresholds vary widely among published literature and are antigen dependent. Best practice is for paraffin sections to be cut within 6 weeks.

The charge of glass slides can be affected by environmental factors and subsequently may alter slide staining. Sending unsuitable glass slides can result in inconsistent staining due to poor slide surface chemistry.

Best practices for storage of positively charged slides:
-Minimize time slides are stored after being unpackaged
-Limit exposure to high humidity and heat
-Minimize exposure to plastics

Clinical Reference

1. Venneti S, Santi M, Felicella MM, et al. A sensitive and specific histopathologic prognostic marker for H3F3A K27M

mutant pediatric glioblastomas. Acta Neuropathol. 2014;128:743-753
2. Bechet D, Gielen GG, Korshunov A, et al. Specific detection of methionine 27 mutation in histone 3 variants (H3K27M) in fixed tissue from high-grade astrocytomas. Acta Neuropathol. 2014;128:733-741
3. Korshunov A, Ryzhova M, Hovestadt V, et al. Integrated analysis of pediatric glioblastoma reveals a subset of biologically favorable tumors with associated molecular prognostic markers. Acta Neuropathol. 2015;129:669-678
4. Schwartzentruber J, Korshunov A, Liu XY, et al. Driver mutations in histone H3.3 and chromatin remodeling genes in paediatric glioblastoma. Nature. 2012;482:226-231
5. Magaki S, Hojat SA, Wei B, So A, Yong WH. An introduction to the performance of immunohistochemistry. Methods Mol Biol. 2019;1897:289-298. doi:10.1007/978-1-4939-8935-5_25

Performance

Method Description
Immunohistochemistry on sections of paraffin-embedded tissue.(Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
1 to 3 days

Specimen Retention Time
Until staining is complete.

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

Test Definition: HK27M

Histone H3 K27M Mutant (H3 K27M)
Immunostain, Technical Component Only

CPT Code Information

88342-TC, primary
88341-TC, if additional IHC

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HK27M	Histone H3 K27M IHC, Tech Only	Order only;no result

Result ID	Test Result Name	Result LOINC® Value
604990	Histone H3 K27M IHC, Tech Only	Bill only; no result